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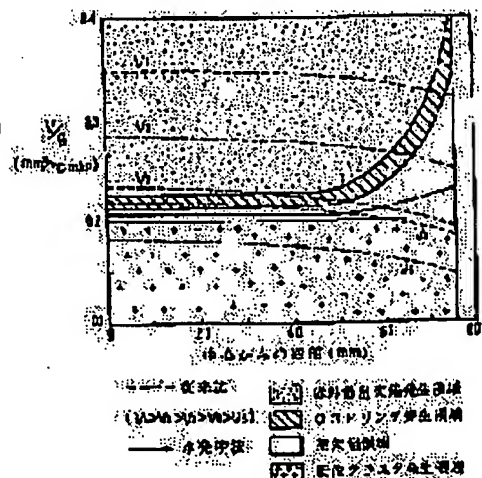
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(54) SILICON SINGLE CRYSTAL WAFER AND ITS PRODUCTION

(57)Abstract

PURPOSE: To provide a silicon single crystal wafer having no grown-in defect over the entire surface.

CONSTITUTION: When a silicon single crystal is grown by Czochralski method at a pulling rate of V (mm/min) with an average temperature gradient of G ($^{\circ}\text{C}/\text{mm}$) in the crystal in the direction of pulling axis over a temperature range from the melting point of silicon and 1300°C , the value of V/G is set at $0.20-0.22\text{ mm}^2/^{\circ}\text{C}\cdot\text{min}$ between the center of crystal and a position separated by 30 mm from the outer circumference of crystal. The value of V/G is set at $0.20-0.22\text{ mm}^2/^{\circ}\text{C}\cdot\text{min}$ between the position separated by 30mm from the outer circumference of crystal and the position on the outer circumference of crystal or it is increased gradually toward the outer circumference of crystal. Consequently, the OSF ring disappears in the center of wafer and no dislocation cluster is generated on the outside of the ring.



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